LAW ENFORCEMENT MUTUAL AID PLAN
(SAR) ANNEX

MUTUAL AID GUIDELINES

SEARCH AND RESCUE
TECHNICAL ROPE RESCUE

February 5, 2004

California Governor's Office of Emergency Services
Law Enforcement Branch
Search and Rescue Mutual Aid – Technical Rope Rescue Guidelines

ACKNOWLEDGMENT

This document is the product of a cooperative effort of an assembled Search and Rescue Technical Rope Rescue Specialist Working Group and the California State Sheriff's Search and Rescue Coordinators.

The Governor's Office of Emergency Services gratefully acknowledges the valuable input and collective expertise from the following members of the SAR Technical Rope Rescue Specialist Working Group:

Terry McNamara Del Norte County Sheriff's Dept. SAR Coordinator – Reserve Sergeant.	Keith Hardcastle Inyo County Sheriff's Dept. Sergeant - SAR Coordinator
Peggy Thomas Del Norte County Sheriff's Dept. Volunteer Assistant SAR Coordinator	Bob Harrington Inyo County Sheriff's Dept. Volunteer SAR
Michael St. John Marin County Sheriff's Dept. Volunteer Unit Leader, Asst. Coordinator	John McKently Los Angeles County Sheriff's Dept. Reserve Commander
Jason Flesher Marin County Sheriff's Dept. Volunteer Search Manager	

This document was completed, accepted, and approved by the California State Sheriff's SAR Coordinators on January 21, 2004. It was further accepted and approved by the California State Sheriff's Association on February 5, 2004.

Introduction

Pursuant to the California Government Code, Chapter 7 of Division 1 of Title 2, "The Emergency Services Act," the Governor's Office of Emergency Services (OES), Law Enforcement Branch manages and maintains the State of California Search and Rescue Mutual Aid Program. This includes the publication of plans pertaining to search and rescue mutual aid. This publication, The California OES SAR Mutual Aid Plan, serves as an annex to the California OES Law Enforcement Mutual Aid Plan.

In order to refine the State's Search and Rescue Mutual Aid Program, the OES Law Enforcement Branch assembled California's 58 County Sheriffs Search and Rescue Coordinators, as well as California's State and Federal SAR Cooperators. This group of interested agencies is called the "State Sheriffs Search and Rescue Coordinators." The main objective of this group is to collectively review and address statewide SAR issues to improve the effectiveness and efficiency of the State's SAR Mutual Aid Program.

One of the main issues identified was the existence of multiple and inconsistent standards that affect the SAR discipline, specifically mutual aid SAR responses. The lack of statewide consistency in how SAR resources were evaluated and categorized made it difficult for SAR resources to be used as a mutual aid resource. This issue was addressed in detail by the State Sheriffs SAR Coordinators. Their objective was to create mutual aid guidelines that met or exceeded existing applicable standards while creating effective, efficient statewide criteria for mutual aid SAR responses. These guidelines are intended to define SAR proficiencies solely for mutual aid resources.

- These guidelines contain information for law enforcement agencies to consider when addressing the broad range of issues related to search and rescue mutual aid. These guidelines do not constitute a policy, nor are they intended to establish a standard for any agency. OES is sensitive to the needs for agencies to have individualized policies that reflect concern for local issues. OES intends these guidelines to be a resource for law enforcement agencies that will provide maximum discretion and flexibility in the development of individual agency policies.

The creation of California's SAR Mutual Aid Guidelines encompass all potential SAR disciplines and are developed as follows:

1. The State Sheriffs SAR Coordinators identify the guideline discipline need.
2. The State Sheriffs SAR Coordinators elect one of their fellow coordinators to chair the guideline creation process.
3. The State Sheriffs SAR Coordinators identify and task a group of subject matter experts into a "Specialist Working Group."
4. The Specialist Working Group creates the guidelines based upon their knowledge and experience and submits them back to the coordinators for review, recommendation, and/or approval.
5. Once approved by the coordinators, and reviewed by OES Administration and Staff Counsel, the coordinators present the guidelines to the California State Sheriffs Association (CSSA) for their review, recommendation and/or approval.
6. Once approved by CSSA, the guidelines become part of the OES California Law Enforcement Mutual Aid Plan – SAR Annex.

Effectiveness and efficiency is achieved as California's SAR Mutual Aid Guidelines are created by California's SAR experts, for California's Sheriffs SAR Coordinators, and approved by the Sheriffs of California, all for the benefit of those who become the subjects of search and/or rescue in California's SAR environments.

The following guidelines include "typing" of both the SAR environment as well as the SAR resource. They are designed to match the conditions, environment, and possible length of deployment (normal operational periods should be 12 hours) as determined by the mutual aid requestor and the minimum equipment, experience, and skill level the responding agency should consider when sending SAR personnel.

The goal of "typing" is to be able to identify the largest number of SAR resources while minimizing the risk of placing an unsuitable SAR resource in an unsafe situation. The responding agency's liaison or leader shall have final approval of any assignments their personnel are asked to perform.

Volunteer SAR personnel should be properly registered as Disaster Service Workers (DSW). DSW registration will ensure that the volunteers are eligible for worker's compensation coverage if they should be injured and it provides additional liability protection for the volunteer and the government agency.

NOTE: The endeavor of Search and Rescue necessitates response into difficult and unpredictable circumstances in widely varied and many times hazardous terrain. These guidelines are intended to assist Search and Rescue Coordinators in identifying appropriate emergency response resources to effect searches and rescues in the most expeditious manner possible while considering known and unknown hazards. These guidelines are not intended to address all eventualities. Rather they are a set of tools derived from collective knowledge to address the task at hand. Search and Rescue is inherently dangerous and participants respond with knowledge of the associated risks.

It is the responsibility of agencies responding to California Search and Rescue Mutual Aid requests to provide qualified personnel and equipment that meet or exceed the recommended level of skills and capabilities stipulated in these guideline documents.

The California SAR Mutual Aid Guidelines are only <u>minimum</u> guidelines and circumstances that are unique to a particular search and rescue mission may dictate that additional or higher skills and qualifications may be necessary for the safety of the searcher and for successful search and rescue operations.

Summary

A Technical Rope Rescue Team is capable of conducting rescues in various terrain and weather conditions ranging from carryouts to low and high angle rescues. There are basic skills that all team members should have before going into the field during a technical rescue. All Technical Rescue Teams should be fully self-contained with the ability to respond to remote locations. A team consists of a minimum of six personnel, one of which is a team leader

The following is a general description of three different environment 'types' and ***suggested minimum*** abilities for Technical Rope Rescue operations within each area type. Weather and/or other objective hazards may indicate an environment of a higher type.

Technical Rope Rescue Environment Type		
Type 1 Extreme / Complex Terrain Environments	**Type 2 Rugged Terrain Environments**	**Type 3 Moderate Terrain Environments**
Extreme Conditions. Snow, ice, desert, heat, heavy ground cover, low angle to vertical	Rugged Conditions. Rope rescue environments low angle to vertical.	Low angle slopes less than 40 degrees.

Recommended Capabilities and Skills			
	TYPE 1	**TYPE 2**	**TYPE 3**
Can be deployed to Environment Type	**1/2/3**	**2/3**	**3**
Medical Skills	Current First Aid/CPR	Current First Aid/CPR	Current First Aid/CPR
Radio Communications	Member should be familiar with basic radio communication skills. This should include: understanding the use of Mutual Aid Radio Frequencies and basic radio etiquette.	Member should be familiar with basic radio communication skills. This should include: understanding the use of Mutual Aid Radio Frequencies and basic radio etiquette.	Member should be familiar with basic radio communication skills. This should include: understanding the use of Mutual Aid Radio Frequencies and basic radio etiquette.
Knowledge of Basic ICS	Should be familiar with ICS.	Should be familiar with ICS.	Should be familiar with ICS.
Helicopter Operations	Basic Helicopter Safety. Knowledge and familiarity with Loading/ Unloading - Both Hot and Cold- Help establish landing site. Knowledge of short haul and/or hoisting.	Basic Helicopter Safety. Knowledge and familiarity with Loading/ Unloading - Both Hot and Cold- Help establish landing site. Knowledge of short haul and/or hoisting.	Basic Helicopter Safety. Knowledge and familiarity with Loading/ Unloading - Both Hot and Cold- Help establish landing site. Knowledge of short haul and/or hoisting.
Navigation	Determine and communicate position; navigate point-to-point with GPS and map/compass; route-finding.	Determine and communicate position; navigate point-to-point with GPS and map/compass; route-finding.	Determine and communicate position; navigate point-to-point with GPS and/or map/compass; route-finding.
Fitness	Fitness appropriate for conditions, terrain, and missions	Fitness appropriate for conditions, terrain, and missions.	Fitness appropriate for conditions, terrain, and missions.
Rope Skills	See appendix #1	See appendix #1	See appendix #1
Crime Scene Protection	Member should be familiar with basic crime scene protection, chain of evidence, and documentation.	Member should be familiar with basic crime scene protection, chain of evidence, and documentation.	Member should be familiar with basic crime scene Protection, chain of evidence, and documentation.

Appendix 1

It is the intent of this appendix to set performance guidelines for the use of technical rope rescue in the State of California where the performance of such skills would fall under the jurisdiction of the California Governor's Office of Emergency Services "Mutual Aid Guidelines." These guidelines are meant only for the performance of Technical Rope Rescue.

Definition of Technical Rope Rescue

Any rescue that requires the use of ropes and associated hardware, when the rope is tied or attached to a person, rescuer, patient, or litter, to assist in either lowering or raising operations.

General Definitions

Anchor – Object, or objects to which a load bearing system is affixed.

Low Angle – Slopes less than 40 degrees.

High Angle – 40 degrees or more.

Carryouts – Moving the patient to an evacuation area. This encompasses short duration operations to very long, multi-mile, intense operations without the use of ropes.

Edge protection – A means of protecting rope and hardware from sharp, abrasive surfaces.

Guiding/Tracking Lines – Used to deflect the litter slightly off the fall line.

Highline – Rope system built between two points of equal or unequal elevation.

Hoisting – Helicopter operation that brings the rescuer, patient, or both, to the aircraft.

Lead Climbing – Climbing that requires the use of rock protection and a rope belay.

Lowering System – Combination of anchors and friction devices used to control the speed and/or direction of a descent.

Mechanical Advantage System – System by which, through a combination of moving pulleys, the force required to move a load is less than the total load. Usually expressed as a ratio of output force to input.

Raising System – System configured to raise a load up or across high, medium, or low angle terrain.

Short Haul – Helicopter operation using rope or cable to move patient/rescuer from one location to another while suspended under the aircraft.

Recommended Safety Guidelines for Technical Rope Rescue

1. All Technical Rope Rescue operations should maintain a minimum static system safety factor (SSSF) of 10:1.

2. Equipment must be used for its intended purpose.

3. Personal Protective Equipment (PPE)
   Personnel will have at a minimum:
   1. Helmets with headlamp.
   2. Leather and rubber gloves.
   3. Sturdy hiking or work boots.
   4. Eye and ear protection.
   5. Appropriate clothing and provisions for environment.

4. A belay adequate and appropriate for the situation or task is recommended.

5. When the majority of the load is on the rope, a two rope system is recommended.

Technical Rope Team Skills

It is recommended that teams have the following skills. A number indicates the minimum number of members on the team with indicated skills. "X" indicates recommended skills for all team members.

	Type 1	Type 2	Type 3
Lead climbing techniques and belay in any environment	2		
Use of crampons and ice ax	X		
Snow and ice anchor systems	X		
Able to work at high altitude if responding to altitude	X	X	
Knowledge of knots to be used	X	X	2
Knot passing procedures	X	2	2
Construction and use of appropriate belay systems	X	2	2
Construction and use of mechanical advantage system	X	2	2
Construction and use of a lowering system	X	2	2
Proficient use of anchors	X	2	2
Proper use of edge protection	X	X	X
Rappel and rope ascension techniques	X	2	
Understanding of loads generated by a system and the resulting static and dynamic stresses on equipment and anchors	2	2	2
Procedures for assuring safety during all rescue operations	X	X	X
Proper procedures for patient packaging	X	X	X
First responder or higher	2	2	

Technical Rope Team Capabilities

Technical Teams will have the ability and shall provide their own equipment to perform a rescue in any environment including but not limited to the following:

	Type 1	Type 2	Type 3
Snow and ice	X		
Lead climbing	2		
Highlines	2	2	
Guiding/Tracking lines	X	2	
Raising and lowering systems	X	2	
High to low angle rescues and carryout with one or more attendants	X	3	
Multiple system setups during the same rescue operation	3	3	
Pick-off	3	2	2
Carryout	X	X	X
Low angle rescue	X	X	3
Low angle raising and lowering system with belay	X	X	3